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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,788	05/24/2001	Raymond J. Gorte	GRI-01-009	3121

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EXAMINER

MERCADO, JULIAN A

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,788

Applicant(s)

GORTE ET AL.

Examiner

Julian A. Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-3,7 and 8 is/are rejected.
- 7) ☐ Claim(s) 4-6 and 9-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 recites that the "impregnated porous YSZ layer is calcined". This limitation, however, does not appear to further limit parent claim 1 in that claim 1 already recites calcining and impregnating of the porous YSZ layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossing et al. (U.S. Pat. 4,598,028) in view of Soma et al. (U.S. Pat. 5,411,767) and Kawasaki et al. (U.S. Pat. 5,358,735).

Regarding independent claim 1 and dependent claims thereto as noted below, Rossing teaches mixing a zirconia powder with zirconia fibers, thereby forming a porous matrix material layer [27]. (col. 2 line 6-11, col. 6 line 18 et seq, under EXAMPLE 1, Figure 3, applies to dependent claim 2) The formed layer is sintered, i.e. calcined. (col. 4 line 39-55, applies to

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dependent claim 8) As to a metal content of the porous YSZ layer being at least 35% by weight, Rossing teaches an amount of metal, i.e. the zircon or zirconia fibers at about 45% by weight.

(col. 4 line 14, applies to dependent claim 7)

As to a yttria-stabilized zirconia powder, Soma is relied upon to demonstrate art-recognized mutual equivalence between Rossing's disclosed calcia-stabilized zirconia powder to the instant yttria-stabilized zirconia powder, in that yttrium as the choice of element for partially substituting lanthanum in the product's crystal structure matches the function, way, and result of calcium. (col. 3 line 37-51, col. 4 line 51-65) Note that even among the disclosed elements, yttrium and calcium, *inter alia*, are preferred.

Rossing does not explicitly teach impregnation of the porous matrix material layer (hereinafter the *prima facie* porous YSZ layer). However, Kawasaki teaches impregnation with nickel nitrate, *inter alia*. (col. 8 line 32-55, applies to dependent claim 3) Thus, the skilled artisan would have found obvious to modify Rossing's invention by impregnating with nickel nitrate. The motivation for such a modification would be to optimize the open circuit voltage of the cell and minimize cell resistance.

Allowable Subject Matter

Claims 4-6 and 9-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: claims 4-6 and 11-14 recite limitations which limit the porous matrix material/powder mixture to

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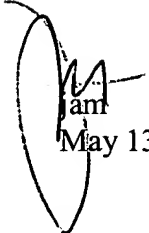
an electrode structure and not an electrode support structure or the electrolyte itself as shown in the prior art. Claims 9 and 10 recite "said porous YSZ layer is impregnated with ceria" which to the examiner's knowledge would not be applicable towards an electrode support structure such as that shown by Rossing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


May 13, 2003


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700